

REMARKS

At the outset, applicants appreciate the Examiner noting claims 15 and the dependent claims thereof as being allowable. At this time however, applicant chooses to cancel claim 15 and present claim 16 in independent form, with claims 17-20 amended to depend from claim 16. As such, applicant submits that claims 16-20 are now in condition for allowance. Claims 1, 2, 4-6, 9, 11 and 16-20 have been amended to further clarify features of the present invention. Claims 3, 7, 8 and 12-14 were previously canceled, and claim 10 remains as originally filed. No new matter has been entered.

Response to Rejections based on 35 USC 112, 1st paragraph

The office action addresses the written description requirement of the 1st paragraph of 35 USC 112, stating that it is unclear wherein the specification certain limitations of claims 1 and 5 are disclosed. As to claim 1, the office action's objected-to terms "during or after the hole forming step" has been deleted. The objected to wording of claims 1 and 5, "in the wavelength axis direction shift amount between the reflectivity of detection light in the flat portion and the reflectivity of detection light in the hole portion" has been clarified, as indicated in the extensively amended claims. Support for the amendments to claims 1, 5 and 11 is found in the text on page 10, lines 16-19 and Figure 5 which discloses determining the wavelength dependency of reflectivity for a flat portion and for a hole portion. The text on page 10, lines 3-6 discloses calculating an amount of shift in wavelength of the reflectivity, and the text on page 12, lines 7-16 discloses determining a depth of the hole based on the shift amount of wavelength.

Responses to Rejections based on 35 USC 102

In regard to the rejection of claims 1 and 11 under 35 USC 102(b) as being anticipated by Noguchi et al (USPN 4.615,620), such rejection is traversed insofar as it is applicable to the claims, as amended, and reconsideration and withdrawal of the rejections are respectfully requested.

As to the requirements to support a rejection under 35 USC 102, reference is made to the decision of In re Robertson, 49 USPQ 2d 1949 (Fed. Cir. 1999), wherein the court pointed out that anticipation under 35 U.S.C. §102 requires that each and every element as set forth in the claim is found, either expressly or inherently described in a single prior art reference. As noted by the court, if the prior art reference does not expressly set forth a particular element of the claim, that reference still may anticipate if the element is "inherent" in its disclosure. To establish inherency, the extrinsic evidence "must make clear that the missing descriptive matter is necessarily present in the thing described in the reference, and that it would be so recognized by persons of ordinary skill." Moreover, the court pointed out that inherency, however, may not be established by probabilities or possibilities. The mere fact that a certain thing may result from a given set of circumstances is not sufficient.

Applicants submit that the amended claims 1, 5 and 11 define a method for fabricating a semiconductor device which is featured by the steps, for example, of:

- a) measuring the wavelength dependency of reflectivity for a flat portion and for a hole portion; measuring a relation between a reflectivity of the light for the flat portion, and a relation between a reflectivity of the light for the hole portion, respectively;

- b) measuring the amount of shift between the reflectivity for the flat portion and the reflectivity for the hole portion with respect to the wavelength; and
- c) calculating the depth of the hole portion based on the shift amount of the reflectivity with respect to the wavelength.

Regarding the rejection of claims 1 and 11, the office action states on page 2, that Noguchi discloses measuring the intensity of interference light with variable wavelength to correspond to the recited, “measuring the amount of shift along the direction of wavelength axis between the reflectivity of detection light for the flat portion and the reflectivity of detection light for the hole portion.” However, the cited Noguchi et al portion does not disclose or teach the claimed feature of using the amount of shift between a first reflectivity for the flat portion and a second reflectivity for the hole portion with respect to first and second wavelengths. Rather, Noguchi et al measures the depth of a pit by determining peaks appearing based on a wavelength dependency of the reflectivity as shown in Fig. 2, and calculating the depth of the pit based on the wavelengths of the peak positions (col. 6, lines 54-64 and Expression 13). Thus, Noguchi et al does not measure the amount of shift between a first reflectivity for the flat portion and a second reflectivity for the hole portion with respect to first and second wavelengths. In other words, Noguchi et al does not have a technical concept of separating the reflectivity for the flat portion and the reflectivity for the hole portion from each other to detect each, as stated in the present claims. Therefore, Noguchi et al does not disclose or teach the claimed features of the invention.

Response to Rejection Based on 35 USC 103

In response to the rejection of claims 4, 5 and 6 under 35 USC 103(a) as being unpatentable over Noguchi et al as applied to claim 1, and further in view of Clevenger (USPN 6,268,293), such rejection is traversed insofar as it is applicable to the claims, as amended, and reconsideration and withdrawal of the rejections are respectfully requested.

To establish *prima facie* obviousness of a claimed invention under 35 USC 103, all the claim limitations must be taught or suggested by the prior art. *In re Royka*, 490 F.2d 981, 180 USPQ 580 (CCPA 1974).


Noguchi et al, as recognized by the Examiner, fails to disclose the steps of etching an insulating film to form a plurality of holes and burying a metal in the holes. Thus, applicants submit that these claims patentably distinguish over Noguchi et al in the sense of 35 USC 103 and should be considered allowable thereover. The office action states that Clevenger et al discloses a damascene process that measures trench depth. However, Clevenger et al does not make up for the deficiencies of Noguchi et al by disclosing, teaching, or suggesting the features of amended claim 5 which recite measuring the amount of shift between a first reflectivity for the flat portion and a second reflectivity for the hole portion with respect to first and second wavelengths. For at least these reasons, the rejection of claims 4, 5 and 6 should be withdrawn on these grounds.

In view of the above amendments and remarks, applicants submit that all claims present in this application should now be in condition for allowance and issuance of an action of favorable nature is courteously solicited.

To the extent necessary, applicants petition for an extension of time under 37 CFR 1.136. Please charge any shortage in the fees due in connection with the filing of this paper, including extension of time fees, to the deposit account of Antonelli, Terry, Stout & Kraus, LLP, Deposit Account No. 01-2135 (Case: 500.45008X00), and please credit any excess fees to such deposit account.

Respectfully submitted,

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